AMENDMENTS TO THE CLAIMS

Claims 1-20 (canceled)

Claim 21 (new) A widely tunable laser apparatus comprising:

a substrate comprising a semiconductor material;

at least two resonator sections formed on the substrate, wherein each of the at least two resonator sections comprise one of a transmission filter and a reflector; and

a two-sided active radiation-generating section formed on the substrate, the at least two resonator sections being coupled with a single side of the two-sided active section,

wherein each of the at least two resonator sections comprises a waveguide system, each waveguide system operatively having spaced resonant maxima points, so as to provide one of a maximum transmittance and a maximum reflectance when subjected to energy of a frequency corresponding with one of the resonant maxima points, and

wherein at least two spacings of the plurality of resonant maxima points are differently spaced in the frequency domain for at least two of the resonant sections.

Claim 22. (new) The apparatus of claim 21, wherein the spacing of the plurality of resonant maxima points in the frequency domain is different for at least two of the resonator sections.

Claim 23. (new) The apparatus of claim 21, wherein, at least one of the resonant maxima points of each of the at least two resonator sections are adjustably overlapping

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

Claim 24 (new) The apparatus of claim 21, wherein the active section creates a light beam as a result of spontaneous emission over a bandwidth around a center frequency and guides the light beam.

Claim 25 (new) The apparatus of claim 21, wherein the active section creates a light beam as a result of spontaneous emission over a bandwidth around a center frequency and optically amplifies the light beam.

Claim 26 (new) The apparatus of claim 25, wherein the apparatus produces a combined reflective action and the optical amplification causes lasing at at least one of the wavelengths associated with one of the reflective maxima points.

Claim 27 (new) The apparatus of claim 21, further comprising a power splitter for coupling one or more of the at least two resonator sections with the active section.

Claim 28 (new) The apparatus of claim 27, wherein the power splitter is coupled with the active section via a first side of the power splitter having a single port and coupled with the at least two resonator sections via a second side of the power splitter having a plurality of parallel connections.

Claim 29 (new) The apparatus of claim 21, wherein only a single resonant maxima point of each of the at least two resonator sections overlap.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001

Claim 30 (new) The apparatus of claim 21, further comprising one or more phase control sections coupled with at least the active section for adjusting a round trip cavity phase of the apparatus.

Claim 31 (new) The apparatus of claim 21, further comprising one or more phase control sections coupled with at least one of said two resonator sections for adjusting a round trip cavity phase of the apparatus.

Claim 32 (previously presented) The apparatus as recited in claim 21, further comprising a current source coupled with the at least two resonator sections for injecting current into one or more of the at least two resonator sections, so as to cause one of a transmission characteristic and a reflection characteristic to be shifted in wavelength.

Claim 33 (new) The apparatus of claim 21, further comprising one or more phase control sections coupled with one of the active section and the at least two resonator sections, wherein the phase control sections are employed to adjust a round trip cavity phase of the apparatus.

Claim 34 The apparatus as recited in claim 33, further comprising a current source coupled with the one or more phase sections for injecting current into one or more of the phase sections, so as to cause the roundtrip cavity phase of the apparatus to be adjusted.

McDONNELL BOEHNEN
HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606
TELEPHONE (312) 913-0001